

**Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services**

STATEMENT OF BASIS

**Unit 308W – Wastewater Treatment Unit
Alliance Refinery
ConocoPhillips Company
Belle Chasse, Plaquemines Parish, Louisiana
Agency Interest Number: 2418
Activity Number: PER20080028
Draft Permit No. 1870-V1**

I. APPLICANT:

Company:

ConocoPhillips Company
P.O. Box 176, Belle Chasse, LA 70037

Facility:

Alliance Refinery
15551 Hwy 23, Belle Chasse, Plaquemines Parish, Louisiana
Approximate UTM coordinates are 211.51 kilometers East and 3,286.84 kilometers North, Zone 16

II. FACILITY AND CURRENT PERMIT STATUS:

ConocoPhillips Company owns and operates the Alliance Refinery, a petroleum refinery located in Belle Chasse, Louisiana. Gulf Oil Company built the refinery in 1970. BP Oil Company owned Alliance Refinery from 1985 until Tosco Corporation (Tosco) purchased it in September 2000. Tosco later became a wholly owned subsidiary of Phillips Petroleum Company on September 17, 2001. On August 30, 2002, Phillips Petroleum Company, including its subsidiary Tosco Corporation, completed a merger with Conoco Inc. to form ConocoPhillips Company. On January 1, 2003, the owner and operator of the Alliance Refinery formally changed from Tosco to ConocoPhillips Company. The processing units in Alliance Refinery operate under several Part 70 permits.

Alliance Refinery produces a wide range of petroleum products from crude oil, such as motor gasoline, jet fuel, diesel fuel, LPG, carbon black feedstock, propane, and coke. It also produces by-product elemental sulfur and petrochemicals such as benzene, toluene, and xylene.

The Wastewater Treatment Unit treats wastewater that is collected from drains in hydrocarbon service that are located within processing areas throughout the refinery.

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Wastewater Collection System (WCS) emissions are controlled from the point of generation using controls such as drain water seals and caps and carbon canisters for junction box vents. Oil/water/solids separations are accomplished using external floating roof tanks and dissolved gas floatation. Vacuum steam strippers are available to strip Volatile Organic Compounds (VOCs) from the wastewater prior to biological treatment if it is required by 40 CFR 61 Subpart FF. VOCs in the stripper overhead are destroyed in a thermal oxidizer. Following biological treatment, the treated water is discharged into the Mississippi River.

The facility operates under several Part 70 and PSD permits addressing portions of the facility. These include:

2180-V1	Unit 191/7991	Crude and Saturate Gas Unit	06/16/2009
2113-V2	Unit 292	Diesel Hydrotreater Unit	06/25/2009
2593-V2	Unit 293	Gulfining Unit	06/16/2009
2840-V2	Unit 294	Low Sulfur Gasoline Unit	07/21/2009
PSD-LA-696(M-1)	Unit 294	Low Sulfur Gasoline Unit	07/21/2009
1810-V3	Unit 1291/301	Fluidized Catalytic Cracking Unit/CO Boilers	07/10/2009
PSD-LA-75(M-3)	Unit 301	Boilers	07/10/2009
PSD-LA-624	Source 301-B-3	Supplemental Boiler	09/16/1998
2778-V1	Unit 303	Utilities	03/26/2009
2779-V2	Unit 308F	Flares Unit	03/06/2009
1870-V0	Unit 308W	Wastewater Treatment Unit	08/23/2005
2313-V1	Unit 406	Marine Loading and Transfer Operations	02/28/2008
2513-V5	Unit 412	Offsites	04/16/2009
2512-V2	Unit 491 & Unit 6191	HF Alkylation & Light Ends Recovery Unit	04/16/2009
2774-V3	Unit 591/592	Sulfur Recovery Unit	05/05/2009
2511-V2	Unit 891	Delayed Coking Unit	11/16/2005
2776-V1	Unit 7591	Merox Treater Unit	01/03/2008
2775-V2	Units 291/1391/1791/1792	Naphfining, Catalytic Reforming, Aromatic Extraction, and Thermal Hydrodealkylation Units	06/16/2009

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III. PROPOSED PERMIT / PROJECT INFORMATION:

Permit Application Submittal Information

ConocoPhillips submitted an application and Emission Inventory Questionnaire (EIQ) dated December 15, 2008, as well as additional information dated October 7, 2009, requesting a Part 70 permit renewal/modification.

Project description

ConocoPhillips proposes the following changes:

- Update the Wastewater Treatment unit emission calculations based on current operating parameters as well as new emission calculation methodology.
- Update fugitive emissions based on updated fugitive component count from the 2006 refinery wide retagging project
- Include a dual carbon canister control system on the Wastewater Collection System. The dual carbon canister control system, as required by the Consent Decree, was implemented to reduce VOC emissions.
- Re-new the Part 70 Permit.

Permitted Air Emissions

Estimated emissions in tons per year are as follows:

<u>Pollutant</u>	<u>Before</u>	<u>After</u>	<u>Change</u>
PM ₁₀	2.21	2.21	-
SO ₂	21.25	47.91	+26.66
NO _x	8.45	8.45	-
CO	7.10	7.10	-
VOC *	133.87	139.22	+5.35

The increase in SO₂ emissions is due to updated operating parameters as well as new emission calculation methodology. The increases in VOC, Benzene, and other TAPs emissions are due to updated emission estimation calculations and updated component counts for fugitive emissions.

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***VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):**

Pollutant	Before	After	Change
Benzene	28.83	37.029	+8.199
Biphenyl	0.14	0.102	-0.038
1,3-Butadiene	<0.01	0.001	+0.001
Cresol	2.74	1.828	-0.912
Cumene	0.15	0.176	+0.026
Ethylbenzene	1.29	2.135	+0.845
n-Hexane	2.67	2.644	-0.026
Methyl Tertiary Butyl Ether	<0.01	-	-
Naphthalene	1.19	1.139	-0.051
Phenol	3.98	2.938	-1.042
Styrene	0.46	0.081	-0.379
2,2,4-Trimethylpentane	1.03	1.024	-0.006
Toluene	10.54	15.647	+5.107
Xylenes	3.34	3.481	+0.141
Total	56.36	68.225	+11.864
Other VOC	77.51	70.995	- 6.515

NON-VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

Pollutant	Before	After	Change
Ammonia	3.74	3.043	- 0.697
Sulfuric Acid	-	0.730	+0.730
Total	3.74	3.773	+0.033

Prevention of Significant Deterioration Applicability

Unit 308W – Wastewater Treatment Unit operating rates have been previously approved as part of the Clean Fuels Project PSD Permit, PSD Permit No. PSD-LA-696(M-1) issued July 21, 2008. There have been no operating rate and emission changes since the PSD permit was issued; hence PSD review is not required.

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MACT requirements

Currently, ConocoPhillips meets MACT requirements by complying with the Louisiana MACT Determination for Refinery Equipment Leaks and 40 CFR 61 Subpart FF – National Emission Standard for Benzene Waste Operations.

Air Modeling Analysis

Dispersion Model(s) Used: ISCST3

Pollutant	Time Period	Calculated Maximum Ground Level Concentration	Louisiana Air Quality Standard (NAAQS)
Benzene	Annual	11.31 $\mu\text{g}/\text{m}^3$	12.00 $\mu\text{g}/\text{m}^3$
Phenol	8-Hour	59.80 $\mu\text{g}/\text{m}^3$	452 $\mu\text{g}/\text{m}^3$
Toluene	8-Hour	7915.30 $\mu\text{g}/\text{m}^3$	8,900 $\mu\text{g}/\text{m}^3$

Impact on air quality from Unit 308W – Wastewater Treatment Unit will be below the National Ambient Air Quality Standards (NAAQS) and the Louisiana Ambient Air Standards (AAS) beyond industrial property. No air modeling analysis is required.

General Condition XVII Activities

The facility will comply with the applicable requirements of General Condition XVII of the Louisiana Air Emission Permit General Conditions in the Title V Permit. For a list of approved General Condition XVII Activities, refer to Section VIII of the draft Part 70 permit. These releases are small and will have an insignificant impact on air quality.

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to Section IX of the draft Part 70 permit.

IV. Permit Shields

A permit shield was not requested.

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V. Periodic Monitoring

Per New Source Performance Standards, Subpart Kb, Benzene in Waste Operations NESHAP, Subpart FF and HON NESHAP, the facility monitors emissions as required. Fugitive emissions must be monitored according to the provisions of the Louisiana Refinery MACT.

VI. Applicability and Exemptions of Selected Subject Items

Regulatory applicability, standards, monitoring, reporting and recordkeeping requirements are provided in the Facility Specific Requirements Section of the draft permit. The table below summarizes highlights of the regulatory applicability for each emission point.

Source ID No.:	Requirement	Applicability
Facility – Unit 308W	LAC 33-III 5107 and 5109 – Comprehensive Toxic Air Pollutant Emission Control Program	Impact of Toxic Air Pollutant (TAP) emissions on air quality shall be the Ambient Air Standard (AAS). Submit TEDI report by July 1 st each year for the preceding calendar year. Submit discharge reports as required.
308-T-11 Skimmed Oil Tank	40 CFR 60 Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984 (40 CFR 60.110b)	Comply with standard for VOC per 40 CFR 60.112b(a)(2). The Skimmed Oil Tank is equipped with an External Floating Roof (EFR).
	40 CFR 60 Subpart QQQ – Standards of Performance for VOC Emissions From Petroleum Refinery Wastewater Systems (40 CFR 60.690)	DOES NOT APPLY. Storage vessel subject to NSPS Kb and, therefore, not subject to the provisions of Subpart QQQ per 40 CFR 60.693-3(d).
	40 CFR 63 Subpart F – National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry (40 CFR 63.100)	Determines applicability to SOCM1 HON Subpart G and H, and applicability of general provisions of 40 CFR 63 Subpart A; has compliance schedules for Subparts G and H; and has additional recordkeeping requirements.
	40 CFR 63 Subpart G – National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Transfer Operations, and Wastewater (40 CFR 63.132)	Source is a Group 2 wastewater stream (less than 1000 ppmw organic HAP) and, therefore, exempt from the control requirements of this regulation. However, the recordkeeping and reporting requirements as described in 40 CFR 63.146 and 63.147 apply.

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Source ID No.:	Requirement	Applicability
308-T-11 Skimmed Oil Tank	40 CFR 63 Subpart CC – National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries (40 CFR 63.640)	Per 40 CFR 63.640, a Group 1 or Group 2 wastewater stream that is conveyed, stored, or treated in a wastewater stream management unit that also receives streams subject to the provisions of 40 CFR 63.133 through 40 CFR 63.147 of subpart G wastewater provisions shall comply with 40 CFR 63.640(o)(2). Group 2 wastewater stream stored.
	LAC 33:III.2103 – Storage of Volatile Organic Compounds	Storage vessel >40 K gal and TVP >= 1.5 psia must be equipped with submerged fill piping and an internal floating roof, external floating roof, or a vapor loss control system. This storage vessel is equipped with an external floating roof and submerged fill piping.
308-T-14 Wastewater Equalization Tank	40 CFR 60 Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984 (40 CFR 60.110b)	Comply with standard for VOC per 40 CFR 60.112b(a)(2). This storage vessel is equipped with an External Floating Roof (EFR).
	40 CFR 60 Subpart QQQ – Standards of Performance for VOC Emissions From Petroleum Refinery Wastewater Systems (40 CFR 60.690)	DOES NOT APPLY. Storage vessel subject to NSPS Kb and, therefore, not subject to the provisions of Subpart QQQ per 40 CFR 60.693-3(d).
	40 CFR 63 Subpart F – National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry (40 CFR 63.100)	Determines applicability to SOCMH HON Subpart G and H, and applicability of general provisions of 40 CFR 63 Subpart A; has compliance schedules for Subparts G and H; and has additional recordkeeping requirements.
	40 CFR 63 Subpart G – National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Transfer Operations, and Wastewater (40 CFR 63.132)	Source is a Group 2 wastewater stream (less than 1000 ppmw organic HAP) and, therefore, exempt from the control requirements of this regulation. However, the recordkeeping and reporting requirements as described in 40 CFR 63.146 and 63.147 apply.
	40 CFR 63 Subpart CC – National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries (40 CFR 63.640)	Per 40 CFR 63.640, a Group 1 or Group 2 wastewater stream that is conveyed, stored, or treated in a wastewater stream management unit that also receives streams subject to the provisions of 40 CFR 63.133 through 40 CFR 63.147 of subpart G wastewater provisions shall comply with 40 CFR 63.640(o)(2). Group 2 wastewater stream stored.

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Source ID No.:	Requirement	Applicability
308-T-14 Wastewater Equalization Tank	LAC 33:III.2103 – Storage of Volatile Organic Compounds	Storage vessel >40 K gal and TVP >= 1.5 psia must be equipped with submerged fill piping and an internal floating roof, external floating roof, or a vapor loss control system. This storage vessel is equipped with an external floating roof and submerged fill piping.
308-T-80/81 Sludge Tanks	40 CFR 60 Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984 (40 CFR 60.110b)	Comply with standard for VOC per 40 CFR 60.112b(a)(2). This storage vessel is equipped with an External Floating Roof (EFR).
	40 CFR 60 Subpart QQQ – Standards of Performance for VOC Emissions From Petroleum Refinery Wastewater Systems (40 CFR 60.690)	DOES NOT APPLY. Storage vessel subject to NSPS Kb and, therefore, not subject to the provisions of Subpart QQQ per 40 CFR 60.693-3(d).
	40 CFR 63 Subpart F – National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry (40 CFR 63.100)	Determines applicability to SOCM1 HON Subpart G and H, and applicability of general provisions of 40 CFR 63 Subpart A; has compliance schedules for Subparts G and H; and has additional recordkeeping requirements.
	40 CFR 63 Subpart G – National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Transfer Operations, and Wastewater (40 CFR 63.132)	Source is a Group 2 wastewater stream (less than 1000 ppmw organic HAP) and, therefore, exempt from the control requirements of this regulation. However, the recordkeeping and reporting requirements as described in 40 CFR 63.146 and 63.147 apply.
	40 CFR 63 Subpart CC – National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries (40 CFR 63.640)	Per 40 CFR 63.640, a Group 1 or Group 2 wastewater stream that is conveyed, stored, or treated in a wastewater stream management unit that also receives streams subject to the provisions of 40 CFR 63.133 through 40 CFR 63.147 of subpart G wastewater provisions shall comply with 40 CFR 63.640(o)(2). Group 2 wastewater stream stored.
	LAC 33:III.2103 – Storage of Volatile Organic Compounds	Storage vessel >40 K gal and TVP >= 1.5 psia must be equipped with submerged fill piping and an internal floating roof, external floating roof, or a vapor loss control system. This storage vessel is equipped with an external floating roof and submerged fill piping.

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Source ID No.:	Requirement	Applicability
308-WWTP Wastewater Treatment Plant	40 CFR 61 Subpart FF – National Emission Standards for Benzene Waste Operations [40 CFR 61.348(b)(2)]	The wastewater treatment plant will comply with the Benzene Waste Operation NESHAP by implementing the pre-treatment compliance option provided in 40 CFR 61.348(a)(1)(i). This source includes emissions from DGF Unit 1&2, the Thermal Oxidizer, Aerated Biotreatment 1&2, Sludge Aerated Biotreatment Tank, Clarifier Effluent Storage Tank, and the Polishing Pond.
	40 CFR 63 Subpart F – National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry (40 CFR 63.100)	Determines applicability to SOCM HON Subpart G and H, and applicability of general provisions of 40 CFR 63 Subpart A; has compliance schedules for Subparts G and H; and has additional recordkeeping requirements. This source includes emissions from DGF Unit 1&2, the Thermal Oxidizer, Aerated Biotreatment 1&2, Sludge Aerated Biotreatment Tank, Clarifier Effluent Storage Tank, and the Polishing Pond
	40 CFR 63 Subpart G – National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Transfer Operations, and Wastewater (40 CFR 63.132)	Source is a Group 2 wastewater stream (less than 1000 ppmw organic HAP) and, therefore, exempt from the control requirements of this regulation. However, the recordkeeping and reporting requirements as described in 40 CFR 63.146 and 63.147 apply. This source includes emissions from DGF Unit 1&2, the Thermal Oxidizer, Aerated Biotreatment 1&2, Sludge Aerated Biotreatment Tank, Clarifier Effluent Storage Tank, and the Polishing Pond
	40 CFR 63 Subpart CC – National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries (40 CFR 63.640)	Per 40 CFR 63.640, a Group 1 or Group 2 wastewater stream that is conveyed, stored, or treated in a wastewater stream management unit that also receives streams subject to the provisions of 40 CFR 63.133 through 40 CFR 63.147 of subpart G wastewater provisions shall comply with 40 CFR 63.640(o)(2).

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VII. Streamlined Requirements

Unit or Plant Site	Programs Being Streamlined	Stream Applicability	Overall Most Stringent Program
Unit 308W – Wastewater Treatment Plant	LAC 33:III.Chapter 51, LA MACT for Refineries	≥ 5% VOTAP (Class I + II)	LA MACT for Refineries
	LAC 33:III.2121, Louisiana Fugitive Emission Control	≥ 10% VOC	
	40 CFR 61 Subpart V, National Emission Standard for Equipment Leaks (Fugitive Emission Sources)	≥ 10% VOC	

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VIII. Glossary

Best Available Control Technologies (BACT) - An emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under this part which would be emitted from any proposed major stationary source or major modification which the administrative authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

CAM - Compliance Assurance Monitoring rule – A federal air regulation under 40 CFR Part 64

Carbon Black - A black colloidal substance consisting wholly or principally of amorphous carbon and used to make pigments and ink.

Carbon Monoxide (CO) – (Carbon monoxide) a colorless, odorless gas produced by incomplete combustion of any carbonaceous (gasoline, natural gas, coal, oil, etc.) material.

Cooling Tower – A cooling system used in industry to cool hot water (by partial evaporation) before reusing it as a coolant.

Continuous Emission Monitoring System (CEMS) – The total combined equipment and systems required to continuously determine air contaminants and diluent gas concentrations and/or mass emission rate of a source effluent.

Cyclone – A control device that uses centrifugal force to separate particulate matter from the carrier gas stream.

Duct Burner – A device that combusts fuel and that is placed in the exhaust duct from another source (such as a stationary gas turbine, internal combustion engine, kiln, etc.) to allow the firing of additional fuel to heat the exhaust gases before the exhaust gases enter a steam generating unit.

Federally Enforceable Specific Condition - A federally enforceable specific condition written to limit the potential to Emit (PTE) of a source that is permanent, quantifiable, and practically enforceable. In order to meet these requirements, the draft permit containing the federally enforceable specific condition must be placed on public notice and include the following conditions:

- A clear statement of the operational limitation or condition which limits the source's potential to emit;
- Recordkeeping requirements related to the operational limitation or condition;

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- A requirement that these records be made available for inspection by LDEQ personnel;
- A requirement to report for the previous calendar year.

Grandfathered Status- Those facilities that were under actual construction or operation as of June 19, 1969, the signature date of the original Clean Air Act. These facilities are not required to obtain a permit. Facilities that are subject to Part 70 (Title V) requirements lose grandfathered status and must apply for a permit.

Heat Recovery Steam Generator (HRSG) – A steam generator that recovers exhaust heat from a gas turbine, and provides economizing and steam generation surfaces.

Hydrogen Sulfide (H₂S) - A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the action of acids on metallic sulfides, and is an important chemical reagent.

Maximum Achievable Control Technology (MACT) - The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

NESHAP - National Emission Standards for Hazardous Air Pollutants –Air emission standards for specific types of facilities, as outlined in 40 CFR Parts 61 through 63

Nitrogen Oxides (NO_x) - Compounds whose molecules consists of nitrogen and oxygen.

Nonattainment New Source Review (NNSR) - A New Source Review permitting program for major sources in geographic areas that do not meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. Nonattainment NSR is designed to ensure that emissions associated with new or modified sources will be regulated with the goal of improving ambient air quality.

NSPS - New Source Performance Standards – Air emission standards for specific types of facilities, as outlined in 40 CFR Part 60

Organic Compound - Any compound of carbon and another element. Examples: Methane (CH₄), Ethane (C₂H₆), Carbon Disulfide (CS₂)

Part 70 Operating Permit- Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: ≥ 10 tons per year of any toxic air pollutant; ≥ 25 tons of total

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toxic air pollutants; and ≥ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM₁₀- Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) - The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Selective Catalytic Reduction (SCR) – A noncombustion control technology that destroys NO_x by injecting a reducing agent (e.g., ammonia) into the flue gas that, in the presence of a catalyst (e.g., vanadium, titanium, or zeolite), converts NO_x into molecular nitrogen and water.

Sulfur Dioxide (SO₂) – An oxide of sulfur.

TAP - Toxic Air Pollutant (LDEQ acronym for air pollutants regulated under LAC 33 Part III, Chapter 51, Tables 1 through 3).

Title V permit – See Part 70 Operating Permit.

“Top Down” approach – An approach which requires use of the most stringent control technology found to be technically feasible and appropriate based on environmental, energy, economic, and cost impacts.

Turbine – A rotary engine in which the kinetic energy of a moving fluid is converted into mechanical energy by causing a bladed rotor to rotate.

Volatile Organic Compound (VOC) - Any organic compound which participates in atmospheric photochemical reactions; that is, any organic compound other than those which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.